

LOCAL GOVERNMENT PROCESS

ENERGY ASSURANCE

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WHY IS AN ENERGY ASSURANCE PLAN IMPORTANT?

- Energy emergencies can have enormous impact areas, but the first response is at the local level
- Many causes of critical infrastructure failure: weather, vandalism, technological
- Must design for resistance, resiliency, and isolation of local failures



HOW DID I GET STARTED?

DO MORE WITH LESS



Hired to manage utility costs for city owned and operated facilities

Existing interest in energy efficiency fueled by the need to reduce facility operating costs

City received stimulus grants:

1. EECBG (Energy Efficiency & Conservation Block Grant)
2. LEAP (Local Energy Assurance Planning Grant)



FUNDING AND EXPERTISE AVAILABILITY

BACKGROUND



NEW HANOVER COUNTY

Population: 227,198*

County includes: City of
Wilmington, Kure Beach,
Carolina Beach and
Wrightsville Beach

Area: 328 square miles
(199 land and 129 water)



CITY OF WILMINGTON

Population: 119,045*

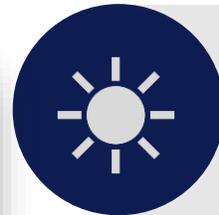
Wilmington is the county seat
of New Hanover

Area: 41.5 square miles
(41 land 0.5 water)

* Population estimates are from 2017 U.S. Census Bureau

PROJECT HIGHLIGHT

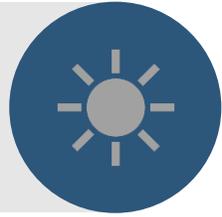
FLEET BUILDING FANS



FLEET BUILDING SOLAR ROOF

CITY OF WILMINGTON, NC

SOLAR AREA LIGHT



OCCUPANCY SENSORS



ENERGY ASSURANCE PLAN CREATION

Introduction

LOCAL GOVERNMENT ENERGY ASSURANCE GUIDELINES

Ten-Step EA Planning Framework

- Created by the Public Technology Institute in 2011
- Recommendations, not requirements to assist local governments in plan creation
- Guidance intended to help plan creators consider important aspects of resiliency

Local governments have become increasingly interested in EA:

- Energy infrastructure is aging, thus jeopardizing its ability to meet increasing demand
- Lack of awareness, training and education regarding energy planning, response and recovery
- The number, severity and length of energy related events seems to be increasing

10 STEP ENERGY ASSURANCE PROCESS OVERVIEW

1 - Build an Energy Assurance Team

2 - Know the Emergency Authority Framework

3 - Understand Roles & Responsibilities

4 - Know the Local Government Energy Profile

5 - Identify Energy Suppliers

6 - Know Primary Contacts

7 - Identify Jurisdiction's Key Assets

8 - Develop an Energy Assurance Crisis Communications Protocol

9 - Develop Partnerships

10 - UPDATE

STEP 1: BUILD AN ENERGY ASSURANCE RESPONSE & PLANNING TEAM

- Arguably the MOST important step
- Must involve the RIGHT people
- Plan Type
- EA Coordinator Designation
- Create a working group

ENERGY ASSURANCE COORDINATOR

“Hub” around which
EA information flows

- Guide and facilitate discussions
- Explain, engage, motivate
- Trust of the group
- Understanding of capabilities
- Public & private sector partners

WORKING GROUP & TYPE OF PLAN

Working Group

- Often starts small
- Grow during data collection and contract upon completion

Type of Plan

Stand Alone

- Self contained
- More specific
- Devoted solely to energy assurance

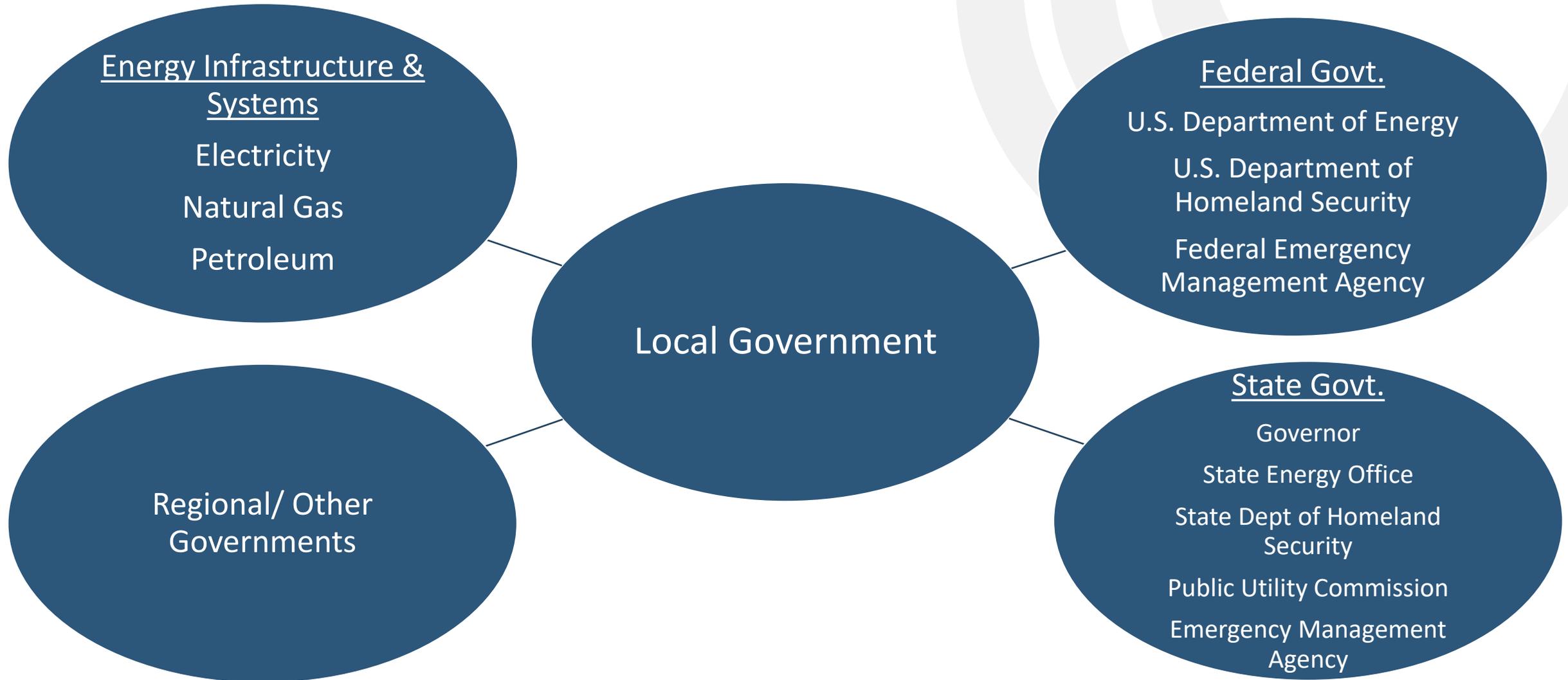
Integrated

- More cost effective
- Builds on existing information
- Potential eligibility for federal mitigation grants

STEP 2: KNOW THE EMERGENCY AUTHORITY FRAMEWORK

- Federal, State and local laws can all come into play during a major energy event
- Important to know the laws that govern BEFORE an event as traditional methods of research and communication may not be available

PUBLIC AND PRIVATE ENERGY SECTOR PARTNERS



* Graphic shown is based on the Local Government Energy Assurance Guidelines – Version 2.0 (2011) produced by the Public Technology Institute, funded by the U.S. Department of Energy (DOE) Office of Electricity Delivery and Energy Reliability (OE).

STEP 3: UNDERSTAND ROLES AND RESPONSIBILITIES

- What is the PURPOSE of your EAP?
- Know WHO is responsible and for WHAT
- Define and Re-define existing roles and responsibilities
- Specific duties of local EMA's (or similar) and coordinators

PURPOSE STATEMENT *IDEAS* FOR YOUR ENERGY ASSURANCE PLAN



Assist in preparing for, responding to, and recovering from energy emergencies



Assure that liquid fuels are continuously available during an energy disruptive event



Minimize local economic, health and safety effects from a disruption in energy service



Assure key assets have the energy they need to sustain essential services for an extended response and recovery



Assure reliable power to essential functions and services during an extended power outage

CLEARLY DEFINED ROLES

Operations Team

- Coordinates and manages critical, immediate response and recovery activities with dispersed deployed city staff for:
 - Evacuation
 - Search and rescue operations
 - Cleaning debris
 - Assessing private and public property damage
 - Evaluating areas for re-entry/ re-entry operations
 - Restoring critical City services
- Monitors needs assessment (i.e., shelter, feeding, medical)
- Advises City Manager or designee and make recommendations regarding citywide response priorities and reallocation of city resources

Information Team

- Coordinate the release of all risk messages and significant information with the City Manager
- Establish a single incident information center or press area whenever possible
- Coordinate with the Operations and Support Teams to prevent conflicting information
- Prepare information summaries as necessary
- Establish specific times for news releases, fact sheets, or updates
- Log citizen calls, inquiries, requests
- Forward tasking requests to Operations Team
- Organize and manage data and information for analysis
- Prepare reports and documents in support of response operations

EXAMPLE OF GROUPS THAT *MAY* OFFER PLANNING EXPERTISE

- National Association of Regional Councils (NARC)
- League of Nebraska Municipalities
- Regional Council of Governments
- Nebraska Energy Office
- National Association of State Energy Officials (NASEO)
- YOUR Planning Department
- Neighboring Communities

STEP 4: LOCAL GOVERNMENT ENERGY PROFILE

Important Questions to Answer:

1. Where does my energy supply come from?
2. How is that energy used across my jurisdiction?
3. Are there seasonal fluctuations in price, supply or demand?
4. What energy vulnerabilities does your community face?

**Which primary fuel is
used to generate
YOUR electricity?**

STEP 5: IDENTIFY ENERGY SUPPLIERS

Energy Sector includes assets related to 3 key energy resources:

1. Electricity
2. Natural Gas
3. Petroleum

POTENTIAL ENERGY INFRASTRUCTURE ISSUES

Electricity	Natural Gas	Petroleum
Generation	Production	Crude Oil
Transmission	Processing	-Onshore/ Offshore
Distribution	Transport	- Terminals -Transport
Control Systems	Storage	Petroleum Processing Facilities
Electricity Markets	Control Systems	- Refineries/ Terminals/ Pipelines
	Gas Markets	- Storage

This chart is modified from the National Infrastructure Protection Plan, Energy Sector Specific Plan. <http://www.dhs.gov/xlibrary/assets/nipp-ssp-energy-2010.pdf>

ENERGY USAGE CHARACTERISTICS



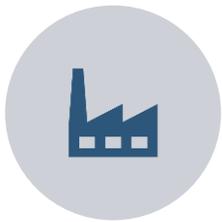
Residential



Commercial



Institutional/
Governmental



Industrial



Agricultural

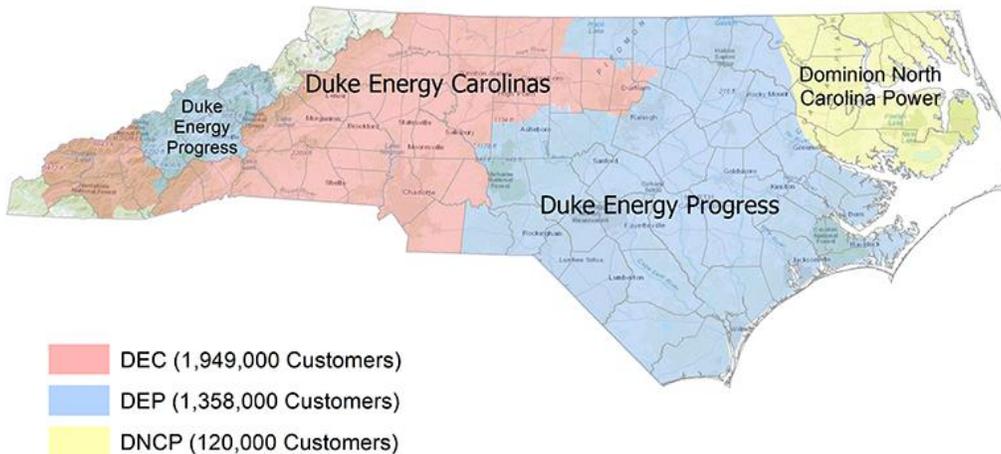


Transportation

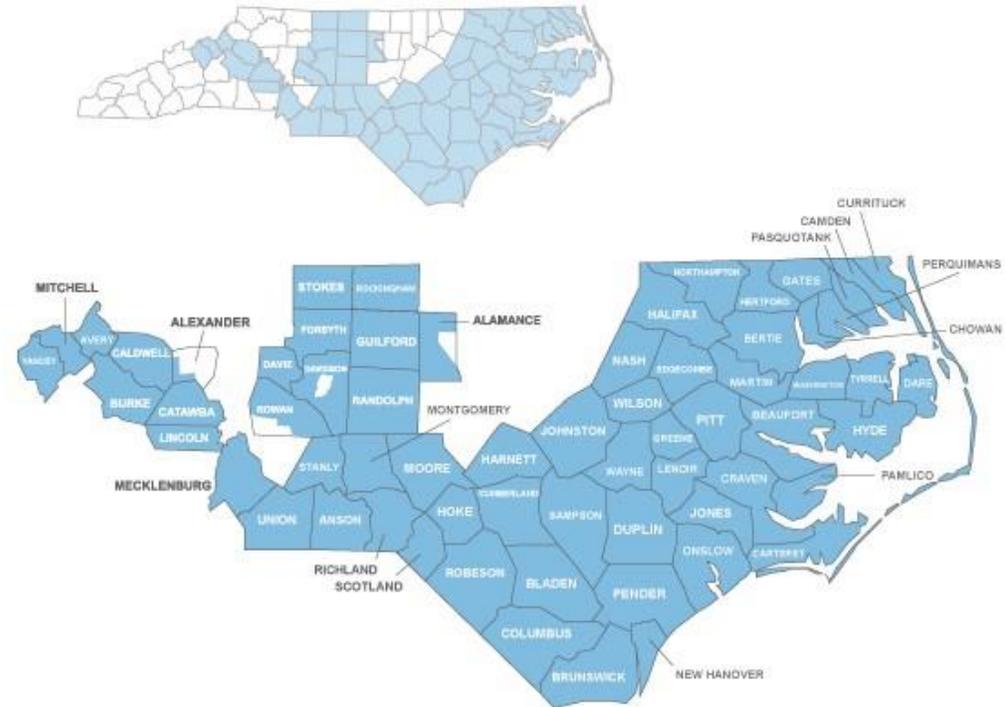
WILMINGTON, NC ENERGY PROFILE (ENERGY SUPPLIERS)

Electrical

North Carolina Electric Investor-Owned Utility Service Area Map



Natural Gas



Source: North Carolina's Public Utility Infrastructure & Regulatory Climate Presented by North Carolina Utilities Commission (October 2017)

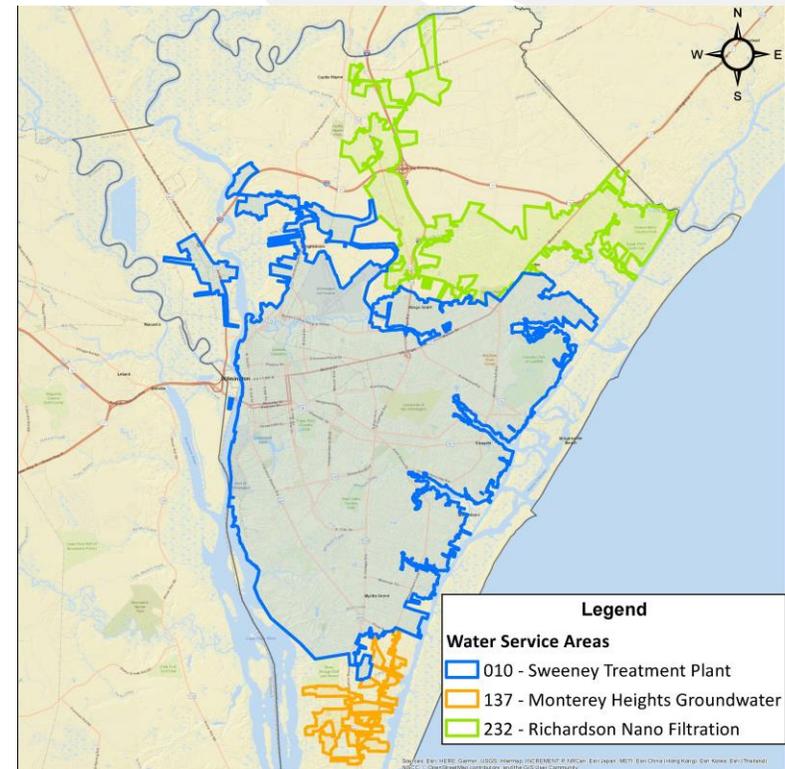
WILMINGTON, NC ENERGY PROFILE (ENERGY SUPPLIERS)

Petroleum

Liquid Terminal Owners in Wilmington:

- Apex Oil Co., 799-1234
- BP NGL, Colonial Terminals, Inc. 251-1234
- Hess Corp., 763-1234
- Invista BV, 799-1243
- Kinder Morgan Energy Partners LP, 762-1234
- Vopak Terminals NA Inc. 763-1234 (Wilmington terminal) and 799-1234 (South Wilmington terminal)

Water & Sewer- Cape Fear Public Utility Authority (CFPUA)

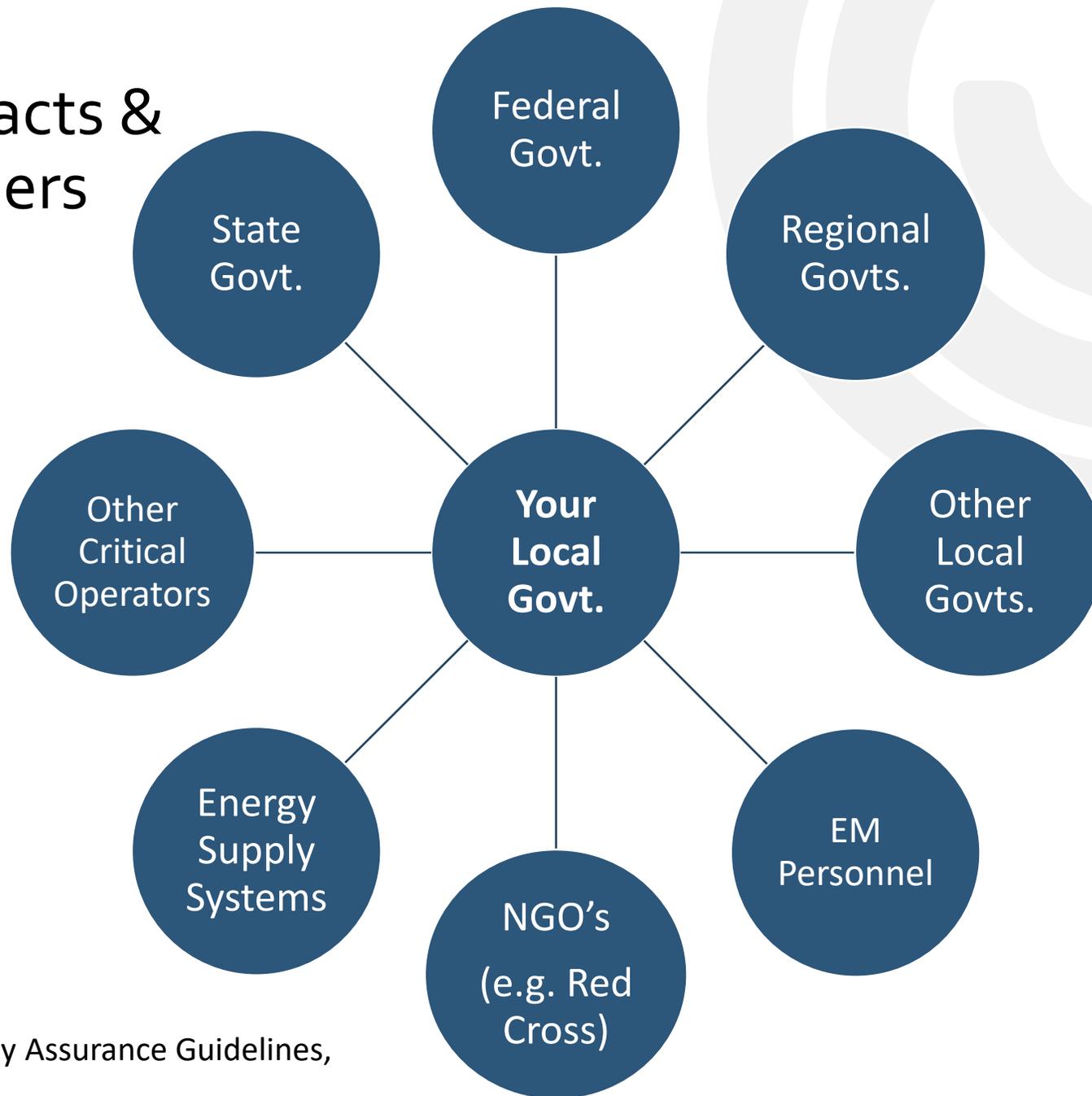


STEP 6: KNOW THE PRIMARY CONTACTS & RELATED PARTNERS

- Develop and UPDATE a list of primary contacts
- Electronic & Hard Copy

- Many energy shortages or disruptions can be addressed without an emergency declaration!

Primary Contacts & Related Partners



STEP 7: IDENTIFY ESSENTIAL SERVICES & KEY ASSETS WITHIN YOUR JURISDICTION

Energy Assurance Drivers

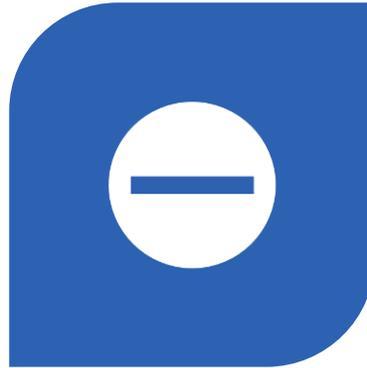
- Essential Services determine Key Assets which lead to the discovery of Energy Assurance Gaps.
- Energy Assurance Gaps lead to the formation of Actions & Projects.

HOW TO IDENTIFY ESSENTIAL SERVICES



Critical

The loss of the essential service might result in death, injury, severe financial loss or legal liability; loss is impossible to work around.



Necessary

The essential service cannot be tolerated for an extended period of time; the loss of the service would be cumbersome to work around, if not available.



Important

The need for the essential service will be evaluated and addressed depending on the event.

CRITICAL ESSENTIAL SERVICES DETERMINE KEY ASSETS

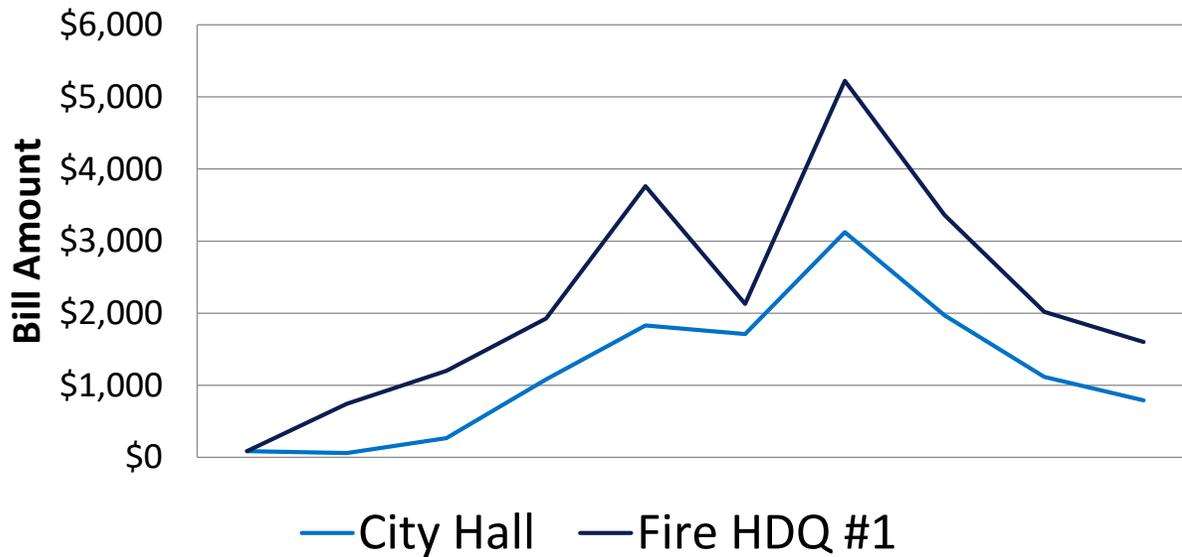
Essential Service	Key Asset(s)
Solid Waste Service	Solid Waste building; 17 solid waste trucks; 2 bulky refuse collection trucks; 12 recycling trucks; Are they all essential?
Fire Service/ Public Safety	Fire Headquarters building; what about the other stations? Are they all essential? Fire Engines?
Mayor's Office/ Communications	City Hall building

KEY ASSETS LEAD TO THE DISCOVERY OF ENERGY ASSURANCE GAPS

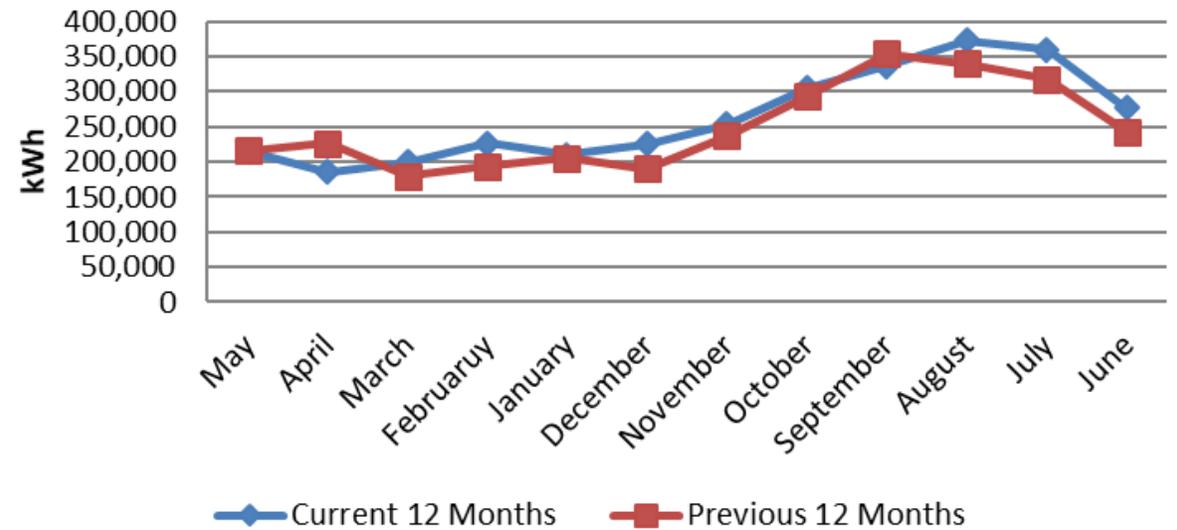
Key Asset	Primary Energy Type	Energy Consumption	Current Back Up System	Energy Assurance Gap
Solid Waste Building	Electricity	12,700 kWh (highest monthly)	Generator/ Diesel	Need for access to a back up diesel fuel source
Fire Trucks	Diesel	100 gallons/ day	None	Need for access to at least 300 gallons of fuel to last 72 hours.
Mayor's Office	Electricity	1. 22kW (previous years' peak demand) 2. 250 kWh (average daily consumption)	Generator/ Natural Gas	Backup generator for this facility produces 15 kW peak. Peak demand is 22kW; shortfall of 7kW.

TYPES OF DATA COLLECTED

Piedmont Natural Gas Critical Facilities Costs



Police Headquarters Energy Consumption



TYPES OF DATA COLLECTED

Overall Fuel Requirements in Gallons

Fuel Tank	Daily Average	Weekly Average	Monthly Average
Tank #1	301	2,030	8,887
Tank #2*	378	2,806	11,329
Tank #3	746	5,152	22,395
Total Gallons	1,425	9,988	42,611

Source: RF Fuel Monitors – City of Wilmington Owned Fuel Tanks; *Diesel

GENERATOR INVENTORY

Location	Address	Own/Lease	Generator Size kWh	Fuel Source	Estimated Run Time
Fire Station #3	123 Elm Street	Own	80	Diesel	8 hours
Police Station	456 Main Street	Lease	100	Diesel & Natural Gas	16 hours
City Hall	789 Water Street	Own	120	Diesel	24 hours

ENERGY ASSURANCE GAPS LEAD TO THE FORMATION OF ACTIONS & PROJECTS



Actions

Any non-tangible activity or measure that supports field and administrative emergency operations. Actions contribute to the protection of key assets and community-level essential services.



Projects

Equipment or hardware investments that protect or harden key assets and the community-level essential services they provide.

STEP 8: ENERGY ASSURANCE CRISIS COMMUNICATIONS

- Internal – Protocols & Message Coordination
- External – Communicating with the public and the media

STEP 9: DEVELOP PARTNERSHIPS

- Public Sector partnership building should be the primary focus, but also consider local suppliers
- Communities often fail to coordinate their energy emergency efforts for many reasons

TOP 10 FUEL PROCUREMENT SITES

Gas Station	Address	Transactions	Gallons	Cost
Scotchman # 107	906 N 23 rd St	2,119	35,452	\$128,577
GoGas #16	2424 N College Rd	1,915	31,127	\$114,538
Exxon Mobil	5325 S College Rd	2,531	29,490	\$105,280
Exxon Mobil	6409 Carolina Beach Rd	2,119	28,964	\$103,419
The Pantry	2400 N College Rd	1,942	25,690	\$91,424
Handee Hugo's	2540 Castle Hayne Rd	1,495	21,831	\$80,049
Smoker's Express	6648 Gordon Rd	1,703	21,062	\$74,992
GoGas #7	5604 Castle Hayne Rd	1,300	19,893	\$73,042
Exxon Mobil	6126 Oleander Dr	1,245	17,953	\$64,863
Exxon Mobil	901 S Third St	1,240	15,684	\$56,145
Total		17,609	247,146	\$892,329

STEP 10: UPDATE YOUR PLAN ON A CONSISTENT BASIS

- A plan of this nature requires regular updates/adjustments
- Consider scheduled annual updates, when updating your emergency plans.
- Be sure to update following energy emergencies. Include lessons learned (what worked? What did not work? What did we not use? What did we use the most?)



THANK YOU FOR YOUR TIME!

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